



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/422,792	10/22/1999	CHIORI MOCHIZUKI	35.G2482	6000

5514 7590 02/26/2004

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

YE, LIN

ART UNIT	PAPER NUMBER
----------	--------------

2612

DATE MAILED: 02/26/2004

10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/422,792

Applicant(s)

MOCHIZUKI, CHIORI

Examiner

Lin Ye

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments filed 12/5/03 have been fully considered but they are not persuasive as to claims 1-51.

For claims 1, 15, 23, 27, 31, 38 and 45, the applicant argues that Majewski references does not teach or suggest an image pick-up apparatus that includes a flattening layer on which a wavelength converter is deposited. The examiner disagrees. The examiner understood the applicant discloses in Figure 3A-B, polyamide layer as a flattening layer (15) was coated on the protective layer (14) which has a rough (bumpy) surface. However, the claims do not state this way. For example, in claim 1, the claimed "flattening layer" is only required a flat face on which the wavelength converter is deposited, is provided between the sensor substrate and wavelength converter. The Majewski reference clearly discloses this features that light guide layer (14) has a flat face on which the wavelength converter (scintillator layer 12), is provided between the sensor substrate (16) and wavelength converter (12) as shown in Figure 2. For this reason, the light guide layer (14) can be considered as the "flattening layer" as cited in claim 1.

2. Applicant's amendments with respect to new claims 52-53 filed on 12/5/03 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

Art Unit: 2612

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-36, 38-43, 45-48 and 50-51, are rejected under 35 U.S.C. 102(e) as being anticipated by Majewski et al. U.S. Patent 6,271,525.

Referring to claim 1, the Majewski reference discloses in Figures 1-4, an image pick-up apparatus (gamma camera system) comprising a wavelength converter for converting an incident radiation (gamma radiation) to a light having a wavelength detectable with a photoelectric conversion element on a sensor substrate on which plural photoelectric conversion elements (photomultiplier array 16) and switching elements (three printed circuit boards 48, 50 and 52 considered as switching elements to receive the output signal from array 16 and transmit it to outside for digitizing, see Col. 4, lines 29-32) are disposed, wherein a flattening layer (light guide 14 as shown in Figure 1, see Col. 3, lines 55-59) having a flat face making a contact with the wavelength converter (scintillator layer 12, see Col. 3, lines 40-45) is provided between the sensor substrate (photomultiplier array 16, see Col. 4, lines 1-10) and wavelength converter (12).

Art Unit: 2612

Referring to claim 2, the Majewski reference discloses wherein the flattening layer (14) is obtained by flattening a protective layer (thin layer 45) provided on the sensor substrate (16) in Figure 1 (e.g., it should be noted, the claimed "protective layer" does not required has a rough or bumpy face to be flattened. The Mjewski reference shows the layer 14 deposits on a protective layer 45 and provides a flat face that can be considered as the means by flattening a protective layer 45 provided on the senor substrate 16; and see Col. 4, lines 22-27).

Referring to claim 3, the Majewski reference discloses wherein flattening layer (14) is provided on a protective layer (thin layer 45) on the sensor substrate (See Col. 4, lines 22-27).

Referring to claim 4, the Majewski reference discloses wherein a second flattening layer (layer 36, 38 and 40) is provided on the wavelength converter (See Col. 3, lines 35-54).

Referring to claim 5, the Majewski reference discloses wherein the second flattening layer (layer 36, 38 and 40) covers the end face of the wavelength converter as shown in Figure 1.

Referring to claim 6, the Majewski reference discloses wherein the surface of the wavelength converter (12) is flattened as shown in Figure 1.

Referring to claim 7, the Majewski reference discloses wherein a light reflection film (a thin foil of aluminum layer 36) is provided on the second flattening layer (See Col. 3, lines 23-25).

Referring to claim 8, the Majewski reference discloses wherein a light reflection film (36) is provided on the flattened wavelength converter (12) as shown in Figure 1.

Art Unit: 2612

Referring to claim 9, the Majewski reference discloses wherein the wavelength converter (scintillator 12) comprises a scintillator.

Referring to claim 10, the Majewski reference discloses wherein the scintillator comprises a columnar crystal (See Col. 3, lines 40-42).

Referring to claim 11, the Majewski reference discloses wherein the scintillator comprises a CsI crystal (scintillator layer 12 can be any conventional scintillator crystal).

Referring to claim 12, the Majewski reference discloses wherein the light reflection film (a thin foil of aluminum layer 36) is made of an aluminum film.

Referring to claim 13, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 12.

Referring to claim 14, the Majewski reference discloses having plural sensor substrates (plural photomultiplier tubes 44 included in array 16).

Referring to claim 15, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 1, and the reference also states the plural sensor substrates on which plural pairs of a photoelectric conversion element (photo pixel array 16) and a switching element (three printed circuit boards 48, 50 and 52 considered as switching element to receive the output signal from array 16 and transmit it to outside for digitizing, see Col. 4, lines 29-32).

Referring to claim 16, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 17, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Art Unit: 2612

Referring to claim 18, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 19, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 9.

Referring to claim 20, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 10.

Referring to claim 21, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 11.

Referring to claim 22, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 12.

Referring to claim 23, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 15, and the reference also states a signal processing means for processing the signal (digitizer 18 digitizes the output of array 16) from the image pick-up apparatus; and a display means for displaying the signal from the signal processing means as shown in Figure 4 (See Col. 2., lines 55-65).

Referring to claim 24, the Majewski reference discloses a telecommunication means for trans ferring the signal from the signal processing means (See Col. 2, lines 64-65).

Referring to claim 25, the Majewski reference discloses a recording means for recording the signal from the signal processing means (computer 20 is for recoding the signal output from digitizer 18).

Art Unit: 2612

Referring to claim 26, the Majewski reference discloses a storage means for storing the signal from the signal processing means (computer 20 is for recoding the signal output from digitizer 18 and transfer data to remote location).

Referring to claim 27, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 23.

Referring to claim 28, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 25.

Referring to claim 29, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 24.

Referring to claim 30, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 26.

Referring to claim 31, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claims 1-3.

Referring to claim 32, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 33, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 34, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 35, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Art Unit: 2612

Referring to claim 36, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 8.

Referring to claim 38, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claims 1-3.

Referring to claim 39, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 40, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 41, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 6.

Referring to claim 42, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Referring to claim 43, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 8.

Referring to claim 45, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 1.

Referring to claim 46, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 4.

Referring to claim 47, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 5.

Referring to claim 48, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 7.

Art Unit: 2612

Referring to claim 50, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 10.

Referring to claim 51, the Majewski reference discloses all subject matter as discussed with respected to same comment as with claim 11.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 37, 44 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Majewski et al. U.S. Patent 6,271,525.

Referring to claims 37, 44 and 49, in last office action, the Official Notice was taken that both the concept and the advantages of providing a vacuum or vapor deposition step for forming the wavelength converter are well known and expected in the art. It should be noted the common knowledge for forming the wavelength convert comprises a vacuum or vapor deposition step **is taken to be admitted prior art** because applicant failed to seasonably traverse this common knowledge from the amendment filed on 12/5/03. See MPEP § 2144.03. In re Chevenard, 60 USPQ 239 (CCPA 1943).

7. Claims 52-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Majewski et al. U.S. Patent 6,271,525 in view of Arai et al. U.S. Patent 5,128,769.

Referring to claims 52-53, The Majewski reference discloses all subject matter as discussed in respected claim 1, except the reference does not explicitly state the photoelectric conversion elements comprise no-single crystalline semiconductor material, such as amorphous silicon film, etc.

The Yamazaki reference discloses in Figure 1A, a thin-film photoelectric conversion device comprise non-single crystalline semiconductor material (see Col. 3, lines 30-35), such as a amorphous silicon film (103), a silicon oxide film (102) and glass substrate (101) as an underlying layer (See col. 4, lines 26-42). The Yamazaki reference is evidence that one of ordinary skill in the art at the time to see more advantages photoelectric conversion elements comprise non-single crystalline semiconductor so as forming an excellent photoelectric conversion characteristic. For that reason, it would have been obvious the photoelectric conversion elements comprise no-single crystalline semiconductor material, such as amorphous silicon film, etc., disclosed by Majewski.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until

Art Unit: 2612

after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lin Ye whose telephone number is (703) 305-3250. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to:


(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,
Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Art Unit: 2612

Lin Ye
February 10, 2004


WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600